

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
28 August 2003 (28.08.2003)

PCT

(10) International Publication Number  
WO 03/071673 A3(51) International Patent Classification<sup>7</sup>: H03D 7/16

(21) International Application Number: PCT/CA03/00257

(22) International Filing Date: 25 February 2003 (25.02.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/360,073 25 February 2002 (25.02.2002) US(71) Applicant (for all designated States except US): SIRIFIC  
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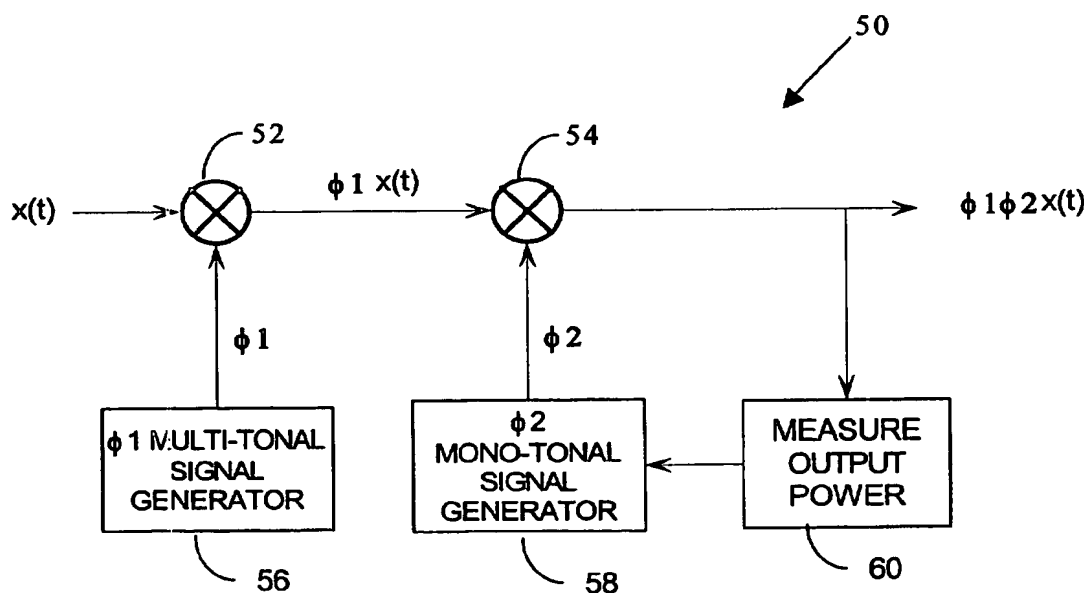
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tario K1P 1C3 (CA).(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,  
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:  
20 November 2003For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: FREQUENCY DOWN CONVERTER USING A MULTITONE LOCAL OSCILLATOR



(57) Abstract: There is a need for an inexpensive, high-performance, fully-integrable, multistandard transceiver, which suppresses spurious noise signals. The invention provides a topology that satisfies this need, providing a first mixer for receiving an input signal  $x(t)$ , and mixing it with a multi-tonal mixing signal  $\phi 1$  to generate an output signal  $\phi 1 x(t)$ , and providing a second mixer for receiving the  $\phi 1 x(t)$  signal, and mixing it with a mono-tonal mixing signal  $\phi 2$ , to generate an output signal  $\phi 1 \phi 2 x(t)$ . The two mixing signals emulate an LO signal because  $\phi 1 * \phi 2$  has significant power at the frequency of the LO signal being emulated. The topology also includes a power measurement circuit for measuring the power of the output signal  $\phi 1 \phi 2 x(t)$ . This power output signal is used to vary the characteristics of the mono-tonal mixing signal  $\phi 2$  to reduce the power level of said output signal.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/CA/00257

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03D7/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 17120 A (SIRIFIC WIRELESS CORP.) 8 March 2001 (2001-03-08) page 7, line 5 -page 13, line 14; figure 5	1-26
A	US 5 862 173 A (P. DENT) 19 January 1999 (1999-01-19) column 4, line 45 -column 7, line 52; figure 1	1-26
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A	US 5 600 680 A (A. MISHIMA) 4 February 1997 (1997-02-04) column 4, line 37 -column 5, line 34; figure 1	1-26



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

5 August 2003

Date of mailing of the international search report

11/08/2003

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# INTERNATIONAL SEARCH REPORT

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International Application No

PCT/CA/00257

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